

## ANT XXII/5 Weekly Report No. 3 7 June - 12 June 2005

After my report about the work of the physical oceanographers on board, today we would like to send some information about air-chemistry observations during our cruise leg. They are conducted by C. Frankenberg from the University of Heidelberg. For cruise planning his observations are easy going, since the equipment is fully automated. He records parameters on a global scale, i.e. without any special requirements with respect to station time or the ship's course. I asked him to summarize his work in the observation laboratory of the POLARSTERN as follows.

Spectrometric measurements of straylight in the UV-Vis are still ongoing during the last leg back to Bremerhaven. By means of optical absorption spectroscopy, concentrations of important atmospheric trace gases such as ozone or nitrogen dioxide can be derived. Especially measurements of variations in trace gas concentrations along a north-south transect give, apart from diurnal variations, valuable information. This is not only of special scientific interest in itself but will also help to validate and interpret satellite borne spectrometric measurements from GOME on ERS-2 and SCIAMACHY aboard ENVISAT.

In other words our cruise leg through the various climatic zones of the southern and northern hemispheres plays a significant role by ground truth data collection for basic research from space.

We are now sailing straight on 23 degrees west since one week. Only yesterday when passing the Cape Verde Archipelago at a distance of 24 nautical miles, we had to change the ship's direction. As a consequence the gallery of deck chairs of the friend of the sun was re-arranged in accordance with the sun angle. Usually the direction of the trades dictates the orientation of the chairs rather than the sun itself. Around noon the tropical sun shines almost vertically, reaching every spot on deck without shadow anyway. In recognition of the seamen's Sunday on Thursday the kitchen had set up a Bavarian styled buffet on the work deck for dinner. Many of the crew and scientists spent long time sitting at the decorated tables enjoying the nightfall of a tropical evening at sea facing the rising stars above. The other social event concerns the crossing of the equator on 8-Jun-2005 at 20:16 and 36 seconds UTC. The bridge marked the passage by one long 'Attention' signal. His majesty NEPTUN, King of the Seas, documented the scene by sealed certificates given to all who travelled with POLARSTERN across the equator for the first time.

Best wishes in the name all on board,

Walter Zenk  
Principal Scientist